

SEQUENCE LISTING

<110> Sibley, David R.
Monsma, Frederick J.
Hamblin, Mark

<120> The ST-B17 Serotonin Receptor

<130> NIH047.1CP1C1

<140> unknown

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<150> US 08/428,242

<151> 1995-09-18

<160> 13

<170> FastSEQ for Windows Version 4.0

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<212> DNA

<213> primer

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gtcgaccctk tksgccmtca kcayrgrtcg cta 33

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aagcatagca ggaaggcctt gaagggcagc ctg 33

<210> 4

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<212> DNA

<213> primer

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ggcgagaaat acgccctgaa gttctcccg gac 33

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 ttgccaatat tactctaagg tgcagcttcc 30

<210> 6
 <211> 30
 <212> DNA
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<400> 6
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 ctagccagga accccacccc catcttatgg catccccggg ggccctattc catcccaggg 180
 ctctcatcca gcccgaagct aactttcatt gactcgtcac atcagtaccc ctccccaaac 240
 ttcttaccog agtactccag gtggccctgc gtaggaggca cccctacaac tcctcccgat 300
 ctcttgaat cgctgctcga tgacctaaga accccgtttt gccaatata ctctaagggtg 360
 cagcttcctt tctcctcctt tgccttcacc ctgtacctgc agtcaccata tcccgtcttg 420
 gtcctcaacc cagtcccc atg gtt cca gag cca ggc cct gtc aac agt agc 471
 Met Val Pro Glu Pro Gly Pro Val Asn Ser Ser
 1 5 10

acc cca gcc tgg ggt ccc ggg cca ccg cct gct ccg ggg ggc agc ggc 519
 Thr Pro Ala Trp Gly Pro Gly Pro Pro Pro Ala Pro Gly Gly Ser Gly
 15 20 25

tgg gtg gct gcc gcg ctg tgc gtg gtc atc gtg ctg aca gca gcc gcc 567
 Trp Val Ala Ala Ala Leu Cys Val Val Ile Val Leu Thr Ala Ala Ala
 30 35 40

aat tcg ctg ctg atc gtg ctc att tgc acg cag ccc gcc gtg cgc aac 615
 Asn Ser Leu Leu Ile Val Leu Ile Cys Thr Gln Pro Ala Val Arg Asn
 45 50 55

acg tct aac ttc ttt ctg gtg tcg ctc ttc acg tcg gac ttg atg gtg 663
 Thr Ser Asn Phe Phe Leu Val Ser Leu Phe Thr Ser Asp Leu Met Val
 60 65 70 75

ggg ttg gtg gtg atg ccc cca gcc atg ctg aac gcg ctg tat ggg cgc 711
 Gly Leu Val Val Met Pro Pro Ala Met Leu Asn Ala Leu Tyr Gly Arg

| | |
|---|------|
| tgg gtg tta gct cga ggc ctc tgt ctg ctt tgg act gcc ttc gac gtg | 759 |
| Trp Val Leu Ala Arg Gly Leu Cys Leu Leu Trp Thr Ala Phe Asp Val | |
| 95 100 105 | |
| atg tgc tgc agc gcc tcc atc ctc aac ctc tgc ctc atc agc ctg gac | 807 |
| Met Cys Cys Ser Ala Ser Ile Leu Asn Leu Cys Leu Ile Ser Leu Asp | |
| 110 115 120 | |
| cgc tac ctg ctc atc ctc tcg ccg ctg cgc tac aag ctg cgc atg aca | 855 |
| Arg Tyr Leu Leu Ile Leu Ser Pro Leu Arg Tyr Lys Leu Arg Met Thr | |
| 125 130 135 | |
| gcc ccg cga gcc ctg gcg ctc atc ctg ggt gcc tgg agc ctc gcg gcg | 903 |
| Ala Pro Arg Ala Leu Ala Leu Ile Leu Gly Ala Trp Ser Leu Ala Ala | |
| 140 145 150 155 | |
| ctt gcc tcc ttc cta ccc ctc ttg ctg ggc tgg cac gaa ctg ggc aaa | 951 |
| Leu Ala Ser Phe Leu Pro Leu Leu Leu Gly Trp His Glu Leu Gly Lys | |
| 160 165 170 | |
| gct cga aca cct gcc cct ggc cag tgc cgc cta ttg gcc agc ctg cct | 999 |
| Ala Arg Thr Pro Ala Pro Gly Gln Cys Arg Leu Leu Ala Ser Leu Pro | |
| 175 180 185 | |
| ttt gtc ctc gtg gcg tcc ggc gtc acc ttt ttc ctg cct tcg ggt gcc | 1047 |
| Phe Val Leu Val Ala Ser Gly Val Thr Phe Phe Leu Pro Ser Gly Ala | |
| 190 195 200 | |
| atc tgc ttc acc tac tgc agg atc ctt ctg gct gcc cgc aag cag gcg | 1095 |
| Ile Cys Phe Thr Tyr Cys Arg Ile Leu Leu Ala Ala Arg Lys Gln Ala | |
| 205 210 215 | |
| gtg caa gtg gcc tcg ctc acc acg ggc acg gct ggc cag gcc ttg gaa | 1143 |
| Val Gln Val Ala Ser Leu Thr Thr Gly Thr Ala Gly Gln Ala Leu Glu | |
| 220 225 230 235 | |
| acc ttg cag gtg ccc agg aca cca cgc cca ggg atg gag tcc gct gac | 1191 |
| Thr Leu Gln Val Pro Arg Thr Pro Arg Pro Gly Met Glu Ser Ala Asp | |
| 240 245 250 | |
| agt agg cgt ctg gcc acc aag cat agc agg aag gcc ttg aag gcc agc | 1239 |
| Ser Arg Arg Leu Ala Thr Lys His Ser Arg Lys Ala Leu Lys Ala Ser | |
| 255 260 265 | |
| ctg acc ctg ggc atc ctg ctg gga atg ttc ttt gtc acc tgg ctg ccc | 1287 |
| Leu Thr Leu Gly Ile Leu Leu Gly Met Phe Phe Val Thr Trp Leu Pro | |
| 270 275 280 | |
| ttc ttt gtg gcc aac ata gct cag gcc gtg tgt gac tgc atc tcc cca | 1335 |
| Phe Phe Val Ala Asn Ile Ala Gln Ala Val Cys Asp Cys Ile Ser Pro | |
| 285 290 295 | |
| ggc ctc ttc gat gtc ctc aca tgg ctg ggg tac tgt aat agc acc atg | 1383 |

Gly Leu Phe Asp Val Leu Thr Trp Leu Gly Tyr Cys Asn Ser Thr Met
 300 305 310 315
 aac cct atc atc tac ccg ctc ttt atg cgg gac ttc aag agg gcc ctg 1431
 Asn Pro Ile Ile Tyr Pro Leu Phe Met Arg Asp Phe Lys Arg Ala Leu
 320 325 330
 ggc agg ttc ctg cat gcg tcc act gtc ccc cgg agc acc ggc cag ccc 1479
 Gly Arg Phe Leu His Ala Ser Thr Val Pro Arg Ser Thr Gly Gln Pro
 335 340 345
 tgc ctc ccc ctc cat gtg gac ctc tca cag cgg tgc cag acc agg cct 1527
 Cys Leu Pro Leu His Val Asp Leu Ser Gln Arg Cys Gln Thr Arg Pro
 350 355 360
 cag ctg cag cag gtg ctc gct ctg cct ctg ccg cca aac tca gat tca 1575
 Gln Leu Gln Gln Val Leu Ala Leu Pro Leu Pro Pro Asn Ser Asp Ser
 365 370 375
 gac tcc gct tca ggg ggc acc tcg ggc ctg cag ctc aca gcc cag ctt 1623
 Asp Ser Ala Ser Gly Gly Thr Ser Gly Leu Gln Leu Thr Ala Gln Leu
 380 385 390 395
 ctg ctg cct gga gag gcc aca cgg gac ccc ccg cca ccc acc agg gcc 1671
 Leu Leu Pro Gly Glu Ala Thr Arg Asp Pro Pro Pro Pro Thr Arg Ala
 400 405 410
 acc act gtg gtc aac ttc ttt gtc aca gac tct gtg gag cct gag ata 1719
 Thr Thr Val Val Asn Phe Phe Val Thr Asp Ser Val Glu Pro Glu Ile
 415 420 425
 cgg ccg cat cca ctc agt tcc ccc gtg aac tgaccaggtc aagagctggc 1769
 Arg Pro His Pro Leu Ser Ser Pro Val Asn
 430 435
 cattggaggc cacattcccg gagctctcag cccactctcc ctgagactag gaggtggtag 1829
 gtctcctgag agtgtgtgta attgaggtat ctcagctagc ccatcttctg ctgcagctcc 1889
 ttgactgagg ggtagtcaga cacat 1914

<210> 8
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 <212> PRT
 <213> Rat

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 Met Val Pro Glu Pro Gly Pro Val Asn Ser Ser Thr Pro Ala Trp Gly
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 Pro Gly Pro Pro Pro Ala Pro Gly Gly Ser Gly Trp Val Ala Ala Ala
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 Leu Cys Val Val Ile Val Leu Thr Ala Ala Ala Asn Ser Leu Leu Ile
 35 40 45
 Val Leu Ile Cys Thr Gln Pro Ala Val Arg Asn Thr Ser Asn Phe Phe
 50 55 60
 Leu Val Ser Leu Phe Thr Ser Asp Leu Met Val Gly Leu Val Val Met
 65 70 75 80

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Pro | Ala | Met | Leu | Asn | Ala | Leu | Tyr | Gly | Arg | Trp | Val | Leu | Ala | Arg |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Gly | Leu | Cys | Leu | Leu | Trp | Thr | Ala | Phe | Asp | Val | Met | Cys | Cys | Ser | Ala |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Ser | Ile | Leu | Asn | Leu | Cys | Leu | Ile | Ser | Leu | Asp | Arg | Tyr | Leu | Leu | Ile |
| | | | 115 | | | | 120 | | | | | 125 | | | |
| Leu | Ser | Pro | Leu | Arg | Tyr | Lys | Leu | Arg | Met | Thr | Ala | Pro | Arg | Ala | Leu |
| | | | 130 | | | 135 | | | | | 140 | | | | |
| Ala | Leu | Ile | Leu | Gly | Ala | Trp | Ser | Leu | Ala | Ala | Leu | Ala | Ser | Phe | Leu |
| 145 | | | | | 150 | | | | 155 | | | | | | 160 |
| Pro | Leu | Leu | Leu | Gly | Trp | His | Glu | Leu | Gly | Lys | Ala | Arg | Thr | Pro | Ala |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Pro | Gly | Gln | Cys | Arg | Leu | Leu | Ala | Ser | Leu | Pro | Phe | Val | Leu | Val | Ala |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ser | Gly | Val | Thr | Phe | Phe | Leu | Pro | Ser | Gly | Ala | Ile | Cys | Phe | Thr | Tyr |
| | | | 195 | | | | 200 | | | | | 205 | | | |
| Cys | Arg | Ile | Leu | Leu | Ala | Ala | Arg | Lys | Gln | Ala | Val | Gln | Val | Ala | Ser |
| | | | 210 | | | 215 | | | | | 220 | | | | |
| Leu | Thr | Thr | Gly | Thr | Ala | Gly | Gln | Ala | Leu | Glu | Thr | Leu | Gln | Val | Pro |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Arg | Thr | Pro | Arg | Pro | Gly | Met | Glu | Ser | Ala | Asp | Ser | Arg | Arg | Leu | Ala |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Thr | Lys | His | Ser | Arg | Lys | Ala | Leu | Lys | Ala | Ser | Leu | Thr | Leu | Gly | Ile |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Leu | Leu | Gly | Met | Phe | Phe | Val | Thr | Trp | Leu | Pro | Phe | Phe | Val | Ala | Asn |
| | | | 275 | | | | 280 | | | | | 285 | | | |
| Ile | Ala | Gln | Ala | Val | Cys | Asp | Cys | Ile | Ser | Pro | Gly | Leu | Phe | Asp | Val |
| | | | 290 | | | 295 | | | | | 300 | | | | |
| Leu | Thr | Trp | Leu | Gly | Tyr | Cys | Asn | Ser | Thr | Met | Asn | Pro | Ile | Ile | Tyr |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Pro | Leu | Phe | Met | Arg | Asp | Phe | Lys | Arg | Ala | Leu | Gly | Arg | Phe | Leu | His |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Ala | Ser | Thr | Val | Pro | Arg | Ser | Thr | Gly | Gln | Pro | Cys | Leu | Pro | Leu | His |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Val | Asp | Leu | Ser | Gln | Arg | Cys | Gln | Thr | Arg | Pro | Gln | Leu | Gln | Gln | Val |
| | | | 355 | | | | 360 | | | | | 365 | | | |
| Leu | Ala | Leu | Pro | Leu | Pro | Pro | Asn | Ser | Asp | Ser | Asp | Ser | Ala | Ser | Gly |
| | | | 370 | | | 375 | | | | | 380 | | | | |
| Gly | Thr | Ser | Gly | Leu | Gln | Leu | Thr | Ala | Gln | Leu | Leu | Leu | Pro | Gly | Glu |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Ala | Thr | Arg | Asp | Pro | Pro | Pro | Pro | Thr | Arg | Ala | Thr | Thr | Val | Val | Asn |
| | | | | 405 | | | | | 410 | | | | 415 | | |
| Phe | Phe | Val | Thr | Asp | Ser | Val | Glu | Pro | Glu | Ile | Arg | Pro | His | Pro | Leu |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Ser | Ser | Pro | Val | Asn | | | | | | | | | | | |
| | | | 435 | | | | | | | | | | | | |

<210> 9
 <211> 2108
 <212> DNA
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<220>
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<222> (439)...(1311)

<221> intron

<222> (1312)...(1505)

<221> CDS

<222> (1506)...(1943)

<400> 9

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agactgcccc ggccggaagg cgaggattcg gtcctgctc ccacatcccc agctgtgccc 120
ctagccagga accccacccc catcttatgg catccccggt ggccctattc catcccaggg 180
ctctcatcca gcccacagct aactttcatt gactcgtcac atcagtaccc ctccccaaac 240
ttcttaccgg agtactccag gtggccctgc gtaggaggca cccctacaac tctctccgat 300
ctcttgaaat cgctgctcga tgacctaaga accccgtttt gccaatata ctctaagggtg 360
cagcttcctt tctctcctt tgccttcacc ctgtacctgc agtcaccata tcccgtcttg 420
gtcctcaacc cagtcccc atg gtt cca gag cca ggc cct gtc aac agt agc 471
                Met Val Pro Glu Pro Gly Pro Val Asn Ser Ser
                  1             5             10
```

```
acc cca gcc tgg ggt ccc ggg cca ccg cct gct ccg ggg ggc agc ggc 519
Thr Pro Ala Trp Gly Pro Gly Pro Pro Ala Pro Gly Gly Ser Gly
                15             20             25
```

```
tgg gtg gct gcc gcg ctg tgc gtg gtc atc gtg ctg aca gca gcc gcc 567
Trp Val Ala Ala Ala Leu Cys Val Val Ile Val Leu Thr Ala Ala Ala
                30             35             40
```

```
aat tgc ctg ctg atc gtg ctc att tgc acg cag ccc gcc gtg cgc aac 615
Asn Ser Leu Leu Ile Val Leu Ile Cys Thr Gln Pro Ala Val Arg Asn
                45             50             55
```

```
acg tct aac ttc ttt ctg gtg tgc ctc ttc acg tgc gac ttg atg gtg 663
Thr Ser Asn Phe Phe Leu Val Ser Leu Phe Thr Ser Asp Leu Met Val
                60             65             70             75
```

```
ggg ttg gtg gtg atg ccc cca gcc atg ctg aac gcg ctg tat ggg cgc 711
Gly Leu Val Val Met Pro Pro Ala Met Leu Asn Ala Leu Tyr Gly Arg
                80             85             90
```

```
tgg gtg tta gct cga ggc ctc tgt ctg ctt tgg act gcc ttc gac gtg 759
Trp Val Leu Ala Arg Gly Leu Cys Leu Leu Trp Thr Ala Phe Asp Val
                95             100             105
```

```
atg tgc tgc agc gcc tcc atc ctc aac ctc tgc ctc atc agc ctg gac 807
Met Cys Cys Ser Ala Ser Ile Leu Asn Leu Cys Leu Ile Ser Leu Asp
                110             115             120
```

```
cgc tac ctg ctc atc ctc tgc ccg ctg cgc tac aag ctg cgc atg aca 855
Arg Tyr Leu Leu Ile Leu Ser Pro Leu Arg Tyr Lys Leu Arg Met Thr
                125             130             135
```

```
gcc ccg cga gcc ctg gcg ctc atc ctg ggt gcc tgg agc ctc gcg gcg 903
Ala Pro Arg Ala Leu Ala Leu Ile Leu Gly Ala Trp Ser Leu Ala Ala
                140             145             150             155
```

| | |
|---|------|
| ctt gcc tcc ttc cta ccc ctc ttg ctg ggc tgg cac gaa ctg ggc aaa | 951 |
| Leu Ala Ser Phe Leu Pro Leu Leu Leu Gly Trp His Glu Leu Gly Lys | |
| 160 165 170 | |
| gct cga aca cct gcc cct ggc cag tgc cgc cta ttg gcc agc ctg cct | 999 |
| Ala Arg Thr Pro Ala Pro Gly Gln Cys Arg Leu Leu Ala Ser Leu Pro | |
| 175 180 185 | |
| ttt gtc ctc gtg gcg tcc ggc gtc acc ttt ttc ctg cct tcg ggt gcc | 1047 |
| Phe Val Leu Val Ala Ser Gly Val Thr Phe Phe Leu Pro Ser Gly Ala | |
| 190 195 200 | |
| atc tgc ttc acc tac tgc agg atc ctt ctg gct gcc cgc aag cag gcg | 1095 |
| Ile Cys Phe Thr Tyr Cys Arg Ile Leu Leu Ala Ala Arg Lys Gln Ala | |
| 205 210 215 | |
| gtg caa gtg gcc tcg ctc acc acg ggc acg gct ggc cag gcc ttg gaa | 1143 |
| Val Gln Val Ala Ser Leu Thr Thr Gly Thr Ala Gly Gln Ala Leu Glu | |
| 220 225 230 235 | |
| acc ttg cag gtg ccc agg aca cca cgc cca ggg atg gag tcc gct gac | 1191 |
| Thr Leu Gln Val Pro Arg Thr Pro Arg Pro Gly Met Glu Ser Ala Asp | |
| 240 245 250 | |
| agt agg cgt ctg gcc acc aag cat agc agg aag gcc ttg aag gcc agc | 1239 |
| Ser Arg Arg Leu Ala Thr Lys His Ser Arg Lys Ala Leu Lys Ala Ser | |
| 255 260 265 | |
| ctg acc ctg ggc atc ctg ctg gga atg ttc ttt gtc acc tgg ctg ccc | 1287 |
| Leu Thr Leu Gly Ile Leu Leu Gly Met Phe Phe Val Thr Trp Leu Pro | |
| 270 275 280 | |
| ttc ttt gtg gcc aac ata gct cag gtaaaatgat gaccgtgaag gtgggatgag | 1341 |
| Phe Phe Val Ala Asn Ile Ala Gln | |
| 285 290 | |
| cttaggtctg accggagaga cgccatgctt cactgggcaa aggtgggagg gaggaggatg | 1401 |
| gctcatctgt ggtgcctgtg tctgtgtttc tgtcctatcc ctgctgggtg ggtagcctgg | 1461 |
| gtccctgcct gggacatggg gtgtgatgag tcttatctcc acag gcc gtg tgt gac | 1517 |
| Ala Val Cys Asp | |
| 295 | |
| tgc atc tcc cca ggc ctc ttc gat gtc ctc aca tgg ctg ggg tac tgt | 1565 |
| Cys Ile Ser Pro Gly Leu Phe Asp Val Leu Thr Trp Leu Gly Tyr Cys | |
| 300 305 310 | |
| aat agc acc atg aac cct atc atc tac ccg ctc ttt atg cgg gac ttc | 1613 |
| Asn Ser Thr Met Asn Pro Ile Ile Tyr Pro Leu Phe Met Arg Asp Phe | |
| 315 320 325 | |
| aag agg gcc ctg ggc agg ttc ctg cat gcg tcc act gtc ccc cgg agc | 1661 |
| Lys Arg Ala Leu Gly Arg Phe Leu His Ala Ser Thr Val Pro Arg Ser | |
| 330 335 340 | |

acc ggc cag ccc tgc ctc ccc ctc cat gtg gac ctc tca cag cgg tgc 1709
 Thr Gly Gln Pro Cys Leu Pro Leu His Val Asp Leu Ser Gln Arg Cys
 345 350 355

cag acc agg cct cag ctg cag cag gtg ctc gct ctg cct ctg ccg cca 1757
 Gln Thr Arg Pro Gln Leu Gln Gln Val Leu Ala Leu Pro Leu Pro Pro
 360 365 370 375

aac tca gat tca gac tcc gct tca ggg ggc acc tcg ggc ctg cag ctc 1805
 Asn Ser Asp Ser Asp Ser Ala Ser Gly Gly Thr Ser Gly Leu Gln Leu
 380 385 390

aca gcc cag ctt ctg ctg cct gga gag gcc aca cgg gac ccc ccg cca 1853
 Thr Ala Gln Leu Leu Leu Pro Gly Glu Ala Thr Arg Asp Pro Pro Pro
 395 400 405

ccc acc agg gcc acc act gtg gtc aac ttc ttt gtc aca gac tct gtg 1901
 Pro Thr Arg Ala Thr Thr Val Val Asn Phe Phe Val Thr Asp Ser Val
 410 415 420

gag cct gag ata cgg ccg cat cca ctc agt tcc ccc gtg aac 1943
 Glu Pro Glu Ile Arg Pro His Pro Leu Ser Ser Pro Val Asn
 425 430 435

tgaccagggtc aagagctggc cattggaggc cacattcccg gagctctcag cccactctcc 2003
 ctgagactag gaggtggtag gtctcctgag agtgtgctga attgaggtat ctcagctagc 2063
 ccattctctg ctgcagctcc ttgactgagg ggtagtcaga cacat 2108

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 <212> PRT
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<400> 10
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 1 5 10 15
 Pro Gly Pro Pro Pro Ala Pro Gly Gly Ser Gly Trp Val Ala Ala Ala
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 35 40 45
 Val Leu Ile Cys Thr Gln Pro Ala Val Arg Asn Thr Ser Asn Phe Phe
 50 55 60
 Leu Val Ser Leu Phe Thr Ser Asp Leu Met Val Gly Leu Val Val Met
 65 70 75 80
 Pro Pro Ala Met Leu Asn Ala Leu Tyr Gly Arg Trp Val Leu Ala Arg
 85 90 95
 Gly Leu Cys Leu Leu Trp Thr Ala Phe Asp Val Met Cys Cys Ser Ala
 100 105 110
 Ser Ile Leu Asn Leu Cys Leu Ile Ser Leu Asp Arg Tyr Leu Leu Ile
 115 120 125
 Leu Ser Pro Leu Arg Tyr Lys Leu Arg Met Thr Ala Pro Arg Ala Leu
 130 135 140
 Ala Leu Ile Leu Gly Ala Trp Ser Leu Ala Ala Leu Ala Ser Phe Leu
 145 150 155 160
 Pro Leu Leu Leu Gly Trp His Glu Leu Gly Lys Ala Arg Thr Pro Ala

<221> misc_feature
 <222> (1)...(1647)
 <223> n = A,T,C or G

<400> 12

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gcttgcggtt cgccgggggcc ctcattctgtt ttcccggcac cctatcactc ccttgccgtc 120
caccctcggt cctc atg gtc cca gag ccg ggc cca acc gcc aat agc acc 170
      Met Val Pro Glu Pro Gly Pro Thr Ala Asn Ser Thr
        1             5             10

ccg gcc tgg ggg gca ggc gcc cgt cgn nng ggg ggc agc ggc tgg gtg 218
Pro Ala Trp Gly Ala Gly Ala Arg Arg Xaa Gly Gly Ser Gly Trp Val
      15             20             25

gcg gcc ggc ctg tgc gtg gtc atc gcg ctg acg gcg gcg gcc aac tcg 266
Ala Ala Gly Leu Cys Val Val Ile Ala Leu Thr Ala Ala Ala Asn Ser
      30             35             40

ctg ctg atc gcg ctc atc tgc act cag ccc gcg ctg cgc aac acg tcc 314
Leu Leu Ile Ala Leu Ile Cys Thr Gln Pro Ala Leu Arg Asn Thr Ser
      45             50             55             60

aac ttc ttc ctg gtg tgc ctc ttc acg tct gac ctg atg gtc ggg ctg 362
Asn Phe Phe Leu Val Ser Leu Phe Thr Ser Asp Leu Met Val Gly Leu
      65             70             75

gtg gtg atg ccg ccg gcc atg ctg aac gcg ctg tac ggg cgc tgg gtg 410
Val Val Met Pro Pro Ala Met Leu Asn Ala Leu Tyr Gly Arg Trp Val
      80             85             90

ctg gcg cgc ggc ctc tgc ctg ctc tgg acc gcc ttc gac gtg atg tgc 458
Leu Ala Arg Gly Leu Cys Leu Leu Trp Thr Ala Phe Asp Val Met Cys
      95             100             105

tgc agc gcc tcc atc ctc aac ctc tgc ctc atc agc ctg gac cgc tac 506
Cys Ser Ala Ser Ile Leu Asn Leu Cys Leu Ile Ser Leu Asp Arg Tyr
      110             115             120

ctg ctc atc ctc tgc ccg ctg cgc tac aag ctg cgc atg acg ccc ctg 554
Leu Leu Ile Leu Ser Pro Leu Arg Tyr Lys Leu Arg Met Thr Pro Leu
      125             130             135             140

cgt gcc ctg gcc cta gtc ctg ggc ggc tgg agc ctc gcc gct ctc gcc 602
Arg Ala Leu Ala Leu Val Leu Gly Gly Trp Ser Leu Ala Ala Leu Ala
      145             150             155

tcc ttc ctg ccc ctg ctg ctg ggc tgg cac gag ctg ggc cac gca cgg 650
Ser Phe Leu Pro Leu Leu Leu Gly Trp His Glu Leu Gly His Ala Arg
      160             165             170

cca ccc gtc cct ggc cag tgc cgc ctg ctg gcc agc ctg cct ttt gtc 698
Pro Pro Val Pro Gly Gln Cys Arg Leu Leu Ala Ser Leu Pro Phe Val
      175             180             185

```

| | |
|---|------|
| ctt gtc ggc tgc ggc ctc acc ttc ttc ctg ccc tgc ggt gcc ata tgc | 746 |
| Leu Val Ala Ser Gly Leu Thr Phe Phe Leu Pro Ser Gly Ala Ile Cys | |
| 190 195 200 | |
| ttc acc tac tgc agg atc ctg cta gct gcc cgc aag cag gcc gtg cag | 794 |
| Phe Thr Tyr Cys Arg Ile Leu Leu Ala Ala Arg Lys Gln Ala Val Gln | |
| 205 210 215 220 | |
| gtg gcc tcc ctc acc acc ggc atg gcc agt cag gcc tgc gag acg ctg | 842 |
| Val Ala Ser Leu Thr Thr Gly Met Ala Ser Gln Ala Ser Glu Thr Leu | |
| 225 230 235 | |
| cag gta ccc agg agc cca ggc gca ggg gtg gag tct gct gac agc agg | 890 |
| Gln Val Pro Arg Ser Pro Ala Ala Gly Val Glu Ser Ala Asp Ser Arg | |
| 240 245 250 | |
| cgt cta gca acg aag agc agc agg aag ggc ctg aag gcc agc atg acg | 938 |
| Arg Leu Ala Thr Lys Ser Ser Arg Lys Gly Leu Lys Ala Ser Met Thr | |
| 255 260 265 | |
| ctg ggc atc ctg ctg ggc atg ttc ttt gtg acc tgg ttg ccc ttc ttt | 986 |
| Leu Gly Ile Leu Leu Gly Met Phe Phe Val Thr Trp Leu Pro Phe Phe | |
| 270 275 280 | |
| gtg gcc aac ata gtc cag gcc gtg tgc gac tgc atc tcc cca ggc ctc | 1034 |
| Val Ala Asn Ile Val Gln Ala Val Cys Asp Cys Ile Ser Pro Gly Leu | |
| 285 290 295 300 | |
| ttc gat gtc ctc aca tgg ctg ggt tac tgt aac agc acc atg aac ccc | 1082 |
| Phe Asp Val Leu Thr Trp Leu Gly Tyr Cys Asn Ser Thr Met Asn Pro | |
| 305 310 315 | |
| atc atc tac cca ctc ttc atg ctg gac ttc aag cgg ggc ctg ggc agg | 1130 |
| Ile Ile Tyr Pro Leu Phe Met Leu Asp Phe Lys Arg Ala Leu Gly Arg | |
| 320 325 330 | |
| ttc ctg cca tgt cca cgc tgt ccc cgg gag ccc agg cca gcc tgg cct | 1178 |
| Phe Leu Pro Cys Pro Arg Cys Pro Arg Glu Pro Arg Pro Ala Trp Pro | |
| 335 340 345 | |
| cgc cat cac tgc gca cct ctc aca ggc gcc ccc ggc ccg gcc tta gcc | 1226 |
| Arg His His Cys Ala Pro Leu Thr Ala Ala Pro Gly Pro Ala Leu Ala | |
| 350 355 360 | |
| tac agc agg tgc tgc cgc tgc ccc tgc cgc cgg act cag att cgg act | 1274 |
| Tyr Ser Arg Cys Cys Arg Cys Pro Cys Arg Arg Thr Gln Ile Arg Thr | |
| 365 370 375 380 | |
| cag acg cag gct cag ggc gct cct cgg ggc tgc ggc tca cgg ccc agc | 1322 |
| Gln Thr Gln Ala Gln Ala Ala Pro Arg Ala Cys Gly Ser Arg Pro Ser | |
| 385 390 395 | |
| tgc tgc ttc ctg ggc agg cca ccc agg acc ccc cgc tgc cca cca ggg | 1370 |
| Cys Cys Phe Leu Ala Arg Pro Pro Arg Thr Pro Arg Cys Pro Pro Gly | |

400

405

410

ccg ctg ccg ccg tca att tct tca aca tcg sac ccc gcg gag ccc gag 1418
 Pro Leu Pro Pro Ser Ile Ser Ser Thr Ser Xaa Pro Ala Glu Pro Glu
 415 420 425

ctg cgg ccg cat cca ctt ggc atc ccc acg aac tga cccggcttgg 1464
 Leu Arg Pro His Pro Leu Gly Ile Pro Thr Asn *
 430 435

ggctggccaa tggggagctg gattgagcag aaccagacc ctgagtcctt gggccagctc 1524
 ttggctaaga ccaggaggct gcaagtctcc tagaagccct ctgagctcca gaggggtgcg 1584
 gcagagctga cccctgtg ccatctccag gccccttacc tgcagggatc atagctgact 1644
 aga 1647

<210> 13
 <211> 439
 <212> PRT
 <213> Homo sapiens

<220>
 <221> VARIANT
 <222> (1)...(439)
 <223> Xaa = Any Amino Acid

<400> 13
 Met Val Pro Glu Pro Gly Pro Thr Ala Asn Ser Thr Pro Ala Trp Gly
 1 5 10 15
 Ala Gly Ala Arg Xaa Xaa Gly Gly Ser Gly Trp Val Ala Ala Gly Leu
 20 25 30
 Cys Val Val Ile Ala Leu Thr Ala Ala Ala Asn Ser Leu Leu Ile Ala
 35 40 45
 Leu Ile Cys Thr Gln Pro Ala Leu Arg Asn Thr Ser Asn Phe Phe Leu
 50 55 60
 Val Ser Leu Phe Thr Ser Asp Leu Met Val Gly Leu Val Val Met Pro
 65 70 75 80
 Pro Ala Met Leu Asn Ala Leu Tyr Gly Arg Trp Val Leu Ala Arg Gly
 85 90 95
 Leu Cys Leu Leu Trp Thr Ala Phe Asp Val Met Cys Cys Ser Ala Ser
 100 105 110
 Ile Leu Asn Leu Cys Leu Ile Ser Leu Asp Arg Tyr Leu Leu Ile Leu
 115 120 125
 Ser Pro Leu Arg Tyr Lys Leu Arg Met Thr Pro Leu Arg Ala Leu Ala
 130 135 140
 Leu Val Leu Gly Gly Trp Ser Leu Ala Ala Leu Ala Ser Phe Leu Pro
 145 150 155 160
 Leu Leu Leu Gly Trp His Glu Leu Gly His Ala Arg Pro Pro Val Pro
 165 170 175
 Gly Gln Cys Arg Leu Leu Ala Ser Leu Pro Phe Val Leu Val Ala Ser
 180 185 190
 Gly Leu Thr Phe Phe Leu Pro Ser Gly Ala Ile Cys Phe Thr Tyr Cys
 195 200 205
 Arg Ile Leu Leu Ala Ala Arg Lys Gln Ala Val Gln Val Ala Ser Leu
 210 215 220
 Thr Thr Gly Met Ala Ser Gln Ala Ser Glu Thr Leu Gln Val Pro Arg

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 225 | | | | | 230 | | | | | 235 | | | | 240 | |
| Ser | Pro | Ala | Ala | Gly | Val | Glu | Ser | Ala | Asp | Ser | Arg | Arg | Leu | Ala | Thr |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Lys | Ser | Ser | Arg | Lys | Gly | Leu | Lys | Ala | Ser | Met | Thr | Leu | Gly | Ile | Leu |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Leu | Gly | Met | Phe | Phe | Val | Thr | Trp | Leu | Pro | Phe | Phe | Val | Ala | Asn | Ile |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Val | Gln | Ala | Val | Cys | Asp | Cys | Ile | Ser | Pro | Gly | Leu | Phe | Asp | Val | Leu |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Thr | Trp | Leu | Gly | Tyr | Cys | Asn | Ser | Thr | Met | Asn | Pro | Ile | Ile | Tyr | Pro |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Leu | Phe | Met | Leu | Asp | Phe | Lys | Arg | Ala | Leu | Gly | Arg | Phe | Leu | Pro | Cys |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Pro | Arg | Cys | Pro | Arg | Glu | Pro | Arg | Pro | Ala | Trp | Pro | Arg | His | His | Cys |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Ala | Pro | Leu | Thr | Ala | Ala | Pro | Gly | Pro | Ala | Leu | Ala | Tyr | Ser | Arg | Cys |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Cys | Arg | Cys | Pro | Cys | Arg | Arg | Thr | Gln | Ile | Arg | Thr | Gln | Thr | Gln | Ala |
| | 370 | | | | | 375 | | | | 380 | | | | | |
| Gln | Ala | Ala | Pro | Arg | Ala | Cys | Gly | Ser | Arg | Pro | Ser | Cys | Cys | Phe | Leu |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Ala | Arg | Pro | Pro | Arg | Thr | Pro | Arg | Cys | Pro | Pro | Gly | Pro | Leu | Pro | Pro |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Ser | Ile | Ser | Ser | Thr | Ser | Xaa | Pro | Ala | Glu | Pro | Glu | Leu | Arg | Pro | His |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Pro | Leu | Gly | Ile | Pro | Thr | Asn | | | | | | | | | |
| | | 435 | | | | | | | | | | | | | |